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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,738	08/30/2000	Osamu Itokawa	35.C14752	2440

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EXAMINER

CHANG, JON CARLTON

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 07/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/650,738

Applicant(s)

ITOKAWA, OSAMU

Examiner

Jon Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 4-14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by the article, "Edge Oriented Block Motion Estimation for Video Coding" by Chan et al. (hereinafter "Chan").

As to claim 19, Chan discloses an image processing method comprising the steps of:

- a) inputting consecutive image data (Fig.4, input for current frame);
- b) dividing the image data into blocks each constituted of a plurality of pixels (page 137, first paragraph of section 2, third sentence);
- c) detecting a motion vector of each block (page 137, first paragraph of section 2, fourth-sixth sentences);
- d) judging a border block in accordance with the detected motion vector, the border block forming a boundary area between an object area and a background area

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corresponding to a background of the object area (page, 138, section 3, note block types 1, 2 and 3; page 139, left column, first sentence); and

e) extracting image data in the object area in accordance with the judged border block (page 140, left column, step (d)).

Note with regard to claim 1: Chan explicitly describes a method, but does not mention an apparatus *per se*. However, it is clear that the method must be implemented on some sort of apparatus. Typically, video coding and motion compensation processes are implemented on apparatus. Note further the article's comments regarding "8-bit fixed point implementation" (page 142, right column), "video compression system" (page 143, right column) and "VLSI implementation" (page 143, right column). In view of this, the apparatus, with associated means, are considered inherent.

As to claim 1, Chan discloses an image processing apparatus (inherent), comprising:

a) input means for inputting consecutive image data (Fig.4, input for current frame);

b) dividing means for dividing the image data into blocks each constituted of a plurality of pixels (page 137, first paragraph of section 2, third sentence);

c) detecting means for detecting a motion vector of each block (page 137, first paragraph of section 2, fourth-sixth sentences);

d) judging means for judging a border block in accordance with the motion vector detected by said detecting means, the border block forming a boundary area between

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an object area and a background area corresponding to a background of the object area (page, 138, section 3, note block types 1, 2 and 3; page 139, left column, first sentence); and

e) extracting means for extracting image data in the object area in accordance with the border block judged by said judging means (page 140, left column, step (d)).

3. Claims 1-3, 15-16 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,343,097 to Kobayashi et al. (hereinafter "Kobayashi").

As to claim 1, Kobayashi discloses an image processing apparatus, comprising:

a) input means for inputting consecutive image data (Fig.3, "Picture Signal Input");

b) dividing means for dividing the image data into blocks each constituted of a plurality of pixels (Fig.3, element 308; column 9, lines 21-22);

c) detecting means for detecting a motion vector of each block (column 9, lines 21-22);

d) judging means for judging a border block in accordance with the motion vector detected by said detecting means, the border block forming a boundary area between an object area and a background area corresponding to a background of the object area (column 10, lines 33-38; Fig.8B); and

e) extracting means for extracting image data in the object area in accordance with the border block judged by said judging means (column 10, lines 51-52).

Regarding claim 2, Kobayashi discloses an apparatus according to claim 1, wherein said judging means judges the border block in accordance with an occurrence frequency of the motion vector detected by said detecting means (column 9, lines 34-40).

Regarding claim 3, Kobayashi discloses an apparatus according to claim 2, wherein said judging means classifies blocks into the border block, an object block corresponding to the object area, and a background block corresponding to the background area (In column 9, lines 34-40, Kobayashi categorizes the codes with the three highest frequencies as having a moving portion. This includes the moving portion, i.e., the object area, as well as the contour, i.e., border, of the object, e.g., column 10, lines 33-38. The other category is "other frequencies," column 9, lines 38-39, which since it does not correspond to moving portions, must be background.).

With regards to claim 15, Kobayashi discloses an apparatus according to claim 3, further comprising encoding means for encoding the image data in the object area extracted by said extracting means (column 5, lines 38-41).

Regarding claim 16, Kobayashi discloses an apparatus according to claim 15, wherein said encoding means encodes the image data in the background area (column 5, lines 38-39; the picture data is encoded; the picture data includes the background area).

In regards to claim 18, Kobayashi discloses an apparatus according to claim 15, further comprising recording means for recording the image data encoded by said encoding means in a storage medium (column 6, lines 36-40).

Claim 19 is drawn to a method which corresponds to claim 1. The discussion provided above for claim 1 is applicable to claim 19.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan.

Claim 20 is drawn to a storage medium storing program codes for image processing steps which correspond to the steps of claim 19. Chan does not explicitly mention the storage medium and program codes. However, the Examiner takes Official Notice that it is known to perform motion estimation and video coding processes using computer-based systems. It would have been obvious to implement Chan's method in a computer-based system because this would provide greater flexibility, and, given the wide availability and low cost of computers, would have been more economical in some applications. Note further Chan's use of the term "algorithm," (e.g., page 140, right column, section 5), implying desired implementation on a computer. It therefore would have been obvious to one of ordinary skill in the art to implement Chan's method in a computer-based system. Such a system would inherently have the storage medium and program codes.

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6. Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi.

As to claim 17, Kobayashi does not disclose a transmitting means for transmitting the image data encoded by said encoding means. However, the Examiner takes Official Notice that encoding means are extremely well known in the art. Kobayashi's system is intended for outputting of encoded NTSC signals (Fig.2, elements 117, 118 and 119). NTSC signals are typically transmitted, as is well known. Therefore, it would have been obvious to one of ordinary skill in the art employ a transmitting means in Kobayashi's system.

Claim 20 is drawn to a storage medium storing program codes for image processing steps which correspond to the steps of claim 19. Kobayashi does not explicitly mention the storage medium and program codes. However, the Examiner takes Official Notice that it is known to perform motion compensation and encoding processes using computer-based systems. It would have been obvious to implement Kobayashi's method in a computer-based system because this would provide greater flexibility, and, given the wide availability and low cost of computers, would have been more economical in some applications. It therefore would have been obvious to one of ordinary skill in the art to implement Kobayashi's method in a computer-based system. Such a system would inherently have the storage medium and program codes.

Allowable Subject Matter

7. Claims 4-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

References Cited

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,699,443 to Murata et al. discloses a method of judging background, foreground position relationship between moving subjects.

U.S. Patent 6,310,920 to Ogawa discloses a moving picture encoding apparatus which divides a moving picture into blocks, extracts a contour, and designates the inside of the contour as a moving object area.

The article, "Two Block-Based Motion Compensation Methods for Video Coding" by Huang et al. teaches using a quad-tree decomposition to subdivide blocks into smaller sub-blocks until the sub-blocks contains no motion boundary pixels.

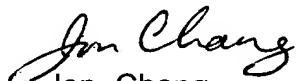
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Chang whose telephone number is (703)305-8439. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.


Jon Chang
Primary Examiner
Art Unit 2623

Jon Chang
July 14, 2003